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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,507	11/09/2001	Sung Moon	P21676	5587

7055 7590 07/14/2003

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EXAMINER
MEYER, DAVID C

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application No. 09/986,507	Applicant(s) MOON ET AL.	
	Examiner David C. Meyer	Art Unit 2878	

-- The MAILING DATE f this communication appears on th cover sh et with the correspondence address --

Peri d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) *3-8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (claims 1-2) in Paper No. 6 is acknowledged. The traversal is on the ground(s) that search and examination of the entire application could be performed without serious burden because all inventions relate to the technology of a three-dimensional conical horn antenna coupled image detector. This is not found persuasive because a search of the two groups would not be coextensive, despite some overlap. A thorough search and examination of Group I would cover photoreceptive sensor arrays coupled to light concentrators, while a thorough search and examination of Group II would cover layering and etching processes in semiconductor manufacturing. The prior art in these two different areas are plentiful and often divergent.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities:

3. On page 6, line 10 refers to an image detector 40, and line 13 to a thermal isolation leg 60. Later on page 6, the thermal isolation leg is given the reference numeral 40. On page 7, the image detector is given the reference numeral 10. The reference numerals should be made consistent throughout the specification.

4. Page 6 also contains disclosure of an "absorption layer 50 whose width is identical to that of the waveguide 25." The waveguide pictured in Figs. 2-4 has a conical shape and therefore comprises a range of widths. To which of the waveguide's widths is

the width of the absorption layer identical? Correction without the addition of new matter is required.

5. Pages 6-7 contain disclosure of a "thermal isolation leg 40, which is formed in a circular shape so it reduces the thermal conductivity and improve the sensitivity of the image detector 10." The thermal isolation leg pictured in Figs. 2 and 3 defines a circular shape on the surface of the image detector 40. However, its own cross-sectional shape is not clearly illustrated. The specification should clarify what "formed in a circular shape" means with regard to the thermal isolation leg. Correction without the addition of new matter is required.

6. Throughout the specification, the term "width" is used in reference to a dimension of the conical horn antenna, the image detector, and the thermal isolation leg. In the drawings, each of these elements is circular. (The conical horn antenna has a circular cross section.) All of the disclosed embodiments include circular image detectors and circular thermal isolation legs. The examiner infers that the circular design of various elements is considered by the applicant to be a point of novelty. Consequently, it is preferred that the term "diameter" be used when referring to the "width" dimension of circular elements.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the limitation that the absorption layer has an "identical width to that of [the] horn antenna waveguide" is ambiguous. A conical horn antenna comprises multiple widths. To which of the waveguide's widths is the width of the absorption layer identical? For examining purposes, prior art references that disclose absorption layers having widths that fall within the range of widths comprised in a horn-shaped waveguide will be deemed to anticipate this limitation.

In claim 1, the limitation that the thermal isolation leg has a "larger width to that of [the] horn antenna wave guide" is ambiguous. Webster's Dictionary defines leg as a pole or bar serving as a support or prop. Does the applicant mean to claim a supporting leg or pole whose cross-sectional width exceeds that of the wave guide? Or does the thermal isolation leg merely *span* a greater distance than the width of the wave guide? The drawings would seem to illustrate the latter arrangement, while the claim suggests the former. For examining purposes, the examiner interprets the above limitation to mean that the thermal isolation leg *spans* a greater distance or width than the width of the waveguide.

The ambiguity extends to claim 2, in which the thermal isolation leg is described as being "manufactured in a circular shape in order to be capable of increasing the length of the leg." Claim 2 is directed to an image detector, not a process of manufacture. Unless it is a characteristic of the thermal isolation leg that its length can

be increased and decreased while a part of the image detector, then the phrase "in order to be capable of increasing the length of the leg" is extraneous. On the other hand, if the length of the thermal isolation leg is considered by the applicant to be a point of novelty, the claim should qualify relative to what the thermal isolation leg's length is increased. Furthermore, does "circular shape" refer to the thermal isolation leg's cross-section or to the shape it defines in the image detector? For examining purposes, the examiner interprets the above limitation to mean that the thermal isolation leg defines a circular shape in the image detector, not that the thermal isolation leg has a circular cross-section.

Allowable Subject Matter

9. Claims 1 and 2 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The following is a statement of reasons for the indication of allowable subject matter:

In claim 1, Mirzaoff (US 5,604,607) discloses a waveguide coupled image detector, wherein a pixel has a width falling within the range of widths comprised in a light concentrator having a hyperbolic cross-section. However, Mirzaoff does not disclose any thermal isolation means. Nor does Mirzaoff disclose that the image detector may be used in a high-temperature environment or to capture a thermal image. Other prior art references disclose "pyroelectric" devices that employ thermal isolation means such as pads or legs. However, these devices lack a waveguide means, let alone a horn-shaped waveguide means, as well as an absorption layer having the recited width characteristics.

Regarding claim 2, the prior art of record fails to disclose or fairly suggest a thermal isolation leg that defines a circular shape in a waveguide coupled image detector.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Contreras (US 4,463,262) discloses a radiation detector in which paired detector elements comprise a temperature-shielded element and a non-shielded element that together compensate for temperature fluctuations. Cheung (US 4,532,424) discloses pyroelectric thermal detector array in which cutaways in the substrate provide thermal isolation to detector elements. Asawa (US 4,214,165) discloses an IR detector that includes thermally isolating spacer pads.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Meyer whose telephone number is 703-305-7955. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

DCM
July 7, 2003

DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800